

Claims

What is claimed is:

5 1. A device for the automatic photoelectric measurement of measuring fields contained on a sheet or strip-shaped, opaque or transparent original comprising:
a housing having an insertion opening for the original;
a transport structure for automatically pulling the original into the housing and for transporting the original along a transport path;

10 a detector of a photoelectric measurement arrangement for providing light of a defined quality to measuring fields contained on the original, for receiving measurement light being remitted or transmitted from the measuring fields pending on the original, and for converting the measurement light into electrical signals representing the colour characteristics of the measuring fields, said photoelectric measurement arrangement being designed as a spectral measurement arrangement, for generating electrical signals representing the spectra of the measured measuring fields on the original; and
a controller for cooperating with the transport members and the spectral measurement arrangement for controlling the pulling in and transport of the original and for converting the electrical signals generated by the spectral measurement arrangement into digital measurement data, for supplying said digital measurement data to an interface for access by an external computer and further processing.

20 2. The device as defined in claim 1, further including an additional densitometric measurement arrangement, cooperating with the controller for generating electrical signals representing the colour densities of the measured measuring fields at least for the colours red, blue, and green.

25 3. The device as defined in claim 1, further including an adjustment structure controlled by the controller, for adjusting the spectral measurement arrangement transversely to the transport path of the original, such that measuring fields of an original having a two-dimensional measuring field arrangement can be measured.

4. The device as defined in claim 2, wherein the adjustment structure is further designed for adjusting the densitometric measurement arrangement transversely to the transport path of the original.

5. 5. The device as defined in claim 3, wherein the spectral measurement arrangement is further designed for transmission measurements and includes a light source for shining light through a transparent original, said light source being transversely adjustable together with the spectral measurement arrangement.

10 6. The device as defined in claim 4, wherein the densitometric measurement arrangement is further designed for transmission measurements and includes a light source for shining light through a transparent original, said light source being transversely adjustable together with the densitometric measurement arrangement.

15 7. The device as defined in claim 3, further including a white reference field, wherein the adjustment structure is for positioning the spectral measurement arrangement near the white reference field under the control of the controller, the spectral measurement arrangement being designed for spectrally measuring the white reference field, said controller being designed for performing an automatic white-calibration based on the spectral measuring data of the white reference field.

20 8. The device as defined in claim 1, wherein configuration data representing the arrangement of the measuring fields on the original for a plurality of different types of originals are stored in the controller; said controller being designed for determining from generated digital measuring data of pre-defined code fields an original identification code specific for the type of original and defined by colours of the pre-defined code fields, for selecting stored configuration data based on the determined original identification code for the type of original that contains said identification code, and for controlling the measurement of individual measuring fields on the original based on the selected configuration data.

25 30 9. The device as defined in claim 1, wherein the controller is designed for determining an original identification code from digital measuring data generated by code fields, said original identification code being formed through colours of defined code



fields, said controller being designed for forming corresponding digital original identification data from the original identification code and for assigning said original identification data to digital measuring data of the respective original.

5 10. The device as defined in claim 1, wherein the controller is designed for determining a positioning code on the original, said positioning code being formed through colours of pre-defined positioning fields, said controller determining the positioning code from digital measuring data generated from said positioning fields, and controlling the measurement of the individual measuring fields of the original using the
10 positioning code.

15 11. The device as defined in claim 1, further including a bar code reader which is connectable to the controller and interacts with the controller, said bar code reader is designed for reading an original identification code in form of a bar code into the controller, said controller being designed to assign the retrieved original identification code or original identification data derived therefrom to digital measuring data of the
respective original.

20 12. The device as defined in claim 1, wherein the transport path inside the housing is substantially U-shaped such that the original is redirected by substantially 180°.

25 13. The device as defined in claim 12, wherein the transport path extends from the insertion opening to a first exit opening, said first exit opening being disposed on a same side of the housing as the insertion opening.

14. The device as defined in claim 13, wherein a second exit opening is provided on a side of the housing opposite to the insertion opening, and wherein the transport path is adjustable such that said transport path extends from the insertion opening to one of the first exit opening and the second exit opening.

30 15. The device as defined in claim 1, further including a serial interface for a bi-directional communication with the external computer, said serial interface being in co-operation with the controller, for transfer of digital measuring data to the external

computer and for control of the function and configuration of the device by means of the external computer.

16. The device as defined in claim 1, further including a USB interface for a bi-directional communication with the external computer, said USB interface being in co-operation with the controller, for transfer of digital measuring data to the external computer and for control of the function and configuration of the device by means of the external computer.

10 17. The device as defined in claim 1, further including a network interface for a bi-directional communication with the external computer via a data network, said network interface being in co-operation with the controller, for transfer of digital measuring data to the external computer and for control of the function and configuration of the device by means of the external computer.

15 18. The device as defined in claim 1, further including a modem for a bi-directional communication with the external computer via a telephone network and/or the Internet, said modem being in co-operation with the controller, for transfer of digital measuring data to the external computer and for control of the function and configuration of the device by means of the external computer.

20 19. The device as defined in claim 17, further including an extension connection for providing a modular connection between the network interface and the controller.

25 20. The device as defined in claim 18, further including an extension connection for providing a modular connection between the modem and the controller.

21. The device as defined in claim 1, wherein the controller comprises an e-mail software for, via the interface, sending an e-mail to the Internet and receiving an e-mail from the Internet, and wherein the communication with the external computer is carried out via e-mail.

22. The device as defined in claim 21, wherein the controller is designed for sending digital measuring data and configuration and control data as an e-mail attachment to and



for receiving digital measuring data and configuration and control data as an e-mail attachment from the external computer.

23. The device as defined in claim 22, wherein the controller provides the digital
5 measuring data in an IT8 format and wherein the controller sends the digital measuring data as an e-mail attachment in the IT8 format.

24. The device as defined in claim 21, further including an optical display unit, said optical display unit being in co-operation with the controller, said controller being
10 designed for displaying on the display unit a message being received as an e-mail from the external computer.

15 25. A test original for testing the settings of a photographic production unit and including a plurality of measuring fields in dependence upon a respective use, comprising a machine-readable code provided on the test original, said code containing information about the type of the original and/or information about the production unit in which the original is used.

20 26. The test original as defined in claim 25, further including a code for automatically determining an orientation of the original during an insertion process into a measuring device suitable for measuring the measuring fields.

27. The test original as defined in claim 25, further including a bar code containing information about the production unit in which the original is used.

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28. The test original as defined in claim 25 or 26, wherein the code is formed of one or more coloured code fields.

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